

In the Claims:

Please cancel claims 17-19, replace claims 1, and 21-24, add new claims 25-29, all as shown below.

1. (Currently amended) An apparatus to perform semiconductor processing, comprising:
 - a process chamber;
 - a plasma generator for generating a plasma in the process chamber; and
 - a [3-dimensional] helical ribbon electrode coupled to the output of the plasma generator,wherein the electrode comprises a ribbon coil having a width that is greater than its thickness.
2. (Original) The apparatus of claim 1, wherein the helical ribbon electrode is external to the process chamber.
3. (Original) The apparatus of claim 2, further comprising a dielectric wall positioned between the chamber and the helical ribbon electrode.
4. (Original) The apparatus of claim 3, wherein the dielectric wall is a flat plate.
5. (Original) The apparatus of claim 3, wherein the dielectric wall is concave.
6. (Original) The apparatus of claim 3, wherein the dielectric wall is convex.

7. (Original) The apparatus of claim 3, wherein the dielectric wall is a tube.
8. (Original) The apparatus of claim 7, wherein the dielectric wall projects through the center of the helical ribbon electrode.
9. (Original) The apparatus of claim 1, wherein the helical ribbon electrode is internal to the process chamber.
10. (Original) The apparatus of claim 1, wherein the apparatus is adapted to receive a workpiece in the chamber and wherein the distance between the helical ribbon electrode and the workpiece is less than five inches.
11. (Original) The apparatus of claim 1, wherein the apparatus is adapted to receive a workpiece in the chamber and wherein the distance between the helical ribbon electrode and the workpiece is between approximately one inch and approximately three inches.
12. (Original) The apparatus of claim 1, wherein the plasma generator pulses the helical ribbon electrode to perform pulse processing.
13. (Original) The apparatus of claim 1, further comprising a controller coupled to the control input of the plasma generator to control the generation of the plasma.

14. (Original) The apparatus of claim 1, wherein the plasma generator is a radio frequency (RF) plasma generator.

15. (Original) The apparatus of claim 1, wherein the plasma generator is a solid state plasma generator without any moving parts and capable of short tuning response time.

16. (Original) The apparatus of claim 1, wherein the plasma generator is a solid state plasma generator employing frequency tuning to achieve output matching.

17. (Canceled).

18. (Canceled).

19. (Canceled).

20. (Canceled).

21. (Currently amended) The apparatus of claim 1, wherein the [3-dimensional] helical ribbon electrode is a [3-dimensional] cylindrical helix that forms a plurality of spiral turns in different planes.

22. (Currently amended) The apparatus of claim 21, wherein the spiral turns are essentially

similar in size.

23. (Currently amended) The apparatus of claim 1, wherein the [3-dimensional helical] ribbon electrode has an elongated cross-section.

24. (Currently amended) A multi-layer processing chamber, comprising:
a gas source coupled to the chamber for introducing a processing gas into a reaction chamber having a sample disposed therein;
a solid state RF plasma source coupled to the chamber to excite the processing gas;
a [3-dimensional] helical ribbon electrode adapted to excite the plasma, the helical ribbon electrode having an elongated cross section; and
a controller coupled to the solid state RF plasma source to pulse the solid state RF plasma source for each deposited layer.

Please add new claims 25-29.

25. (New) The apparatus of claim 1, wherein the helical ribbon electrode wherein the ribbon coil has a width that is substantially greater than its thickness.

26. (New) The apparatus of claim 1, wherein the ratio of width to thickness ranges up to 1:10,000.

27. (New) The apparatus of claim 24 wherein the electrode comprises a ribbon coil having a width that is greater than its thickness.

28. (New) The apparatus of claim 27, wherein the helical ribbon electrode wherein the ribbon coil has a width that is substantially greater than its thickness.

29. (New) The apparatus of claim 27, wherein the ratio of width to thickness ranges up to 1:10,000.